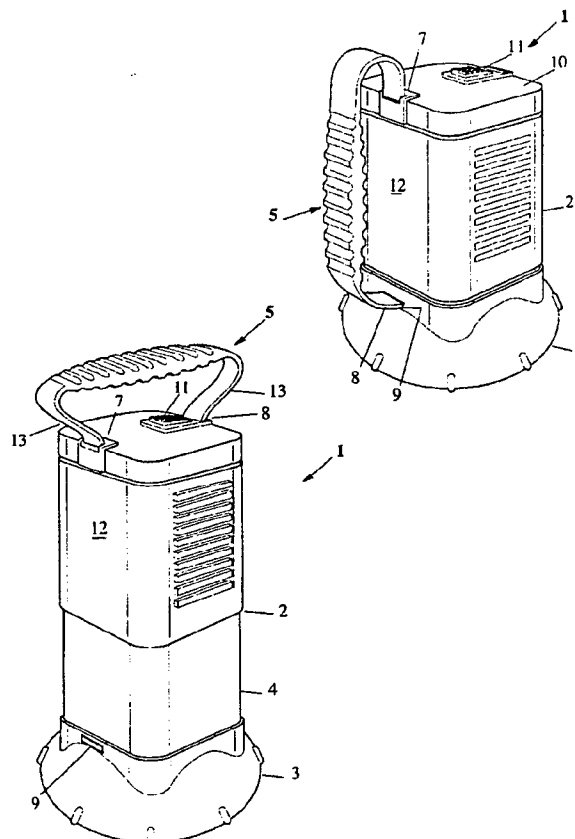


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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**(54) Title:** FLASHLIGHT**(57) Abstract**

A handle assembly for a portable light, said portable light being convertible between a flash light mode and a lantern mode, said handle assembly including a handle means having ends which engage the body of the light characterised such that a part or all of said handle means can be moved from a first arrangement by which said handle allows the light to be gripped as a flashlight to a second arrangement wherein said light can be gripped as a lantern.



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## FLASHLIGHT

## TECHNICAL FIELD

The present invention relates to portable lights more particularly those lights which are convertible between a flash light mode and lantern mode. More particularly the invention relates to handle assemblies for such flash lights.

## BACKGROUND ART

Prior art portable lights are generally either lanterns or flash lights. The development of flash lights which are convertible between lantern mode and flash light mode has led to particular difficulties relating to the ability to grip and properly utilise the portable light particularly when large battery or storage cells are used.

Whilst greater power and longer life is generally delivered from large battery sources their shape and size render difficult the use of flash lights particularly those which are able to be used as both lantern and flash light.

The object of the present invention is to substantially overcome at least one of the disadvantages of the prior art by providing a single handle assembly which can serve as a handle in either mode of use i.e. either as a flash light or as a lantern.

## DISCLOSURE OF THE INVENTION

According to one aspect of the present invention there is disclosed a handle assembly for a portable light, said portable light being convertible between a flash light and a lantern, said handle assembly including a handle means whose ends engage the body of the light characterised such that a part or all of said handle means can be moved from a first arrangement in which said handle allows the light to be gripped as a flashlight to a second arrangement wherein said light can be gripped as a lantern.

Preferably when said handle is placed in said second arrangement said flash light is convertible into lantern mode.

It is also preferable that one end of said handle remains secured whilst the other end is moveable. In an alternative embodiment preferably both ends are movable or are either detachable and replaceable or are slidable from their respective securing locations. Preferably the hand gripped portion of said

handle means is symmetrical so that the same grip is held whether said portable light is a lantern or a flash light. It is also preferable that when one end of said handle remains secured and said other end is movable, said other end is secured to a movable part of said light to prevent same from moving into the lantern mode.

These features of the invention allow a single handle to be advantageously positioned to secure the mode requirement of the lantern or flash light as different actions are utilised, the present invention makes such portable lights user friendly, as different grip orientations are desired.

## DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawing in which:

Fig. 1 illustrates a portable light and its handle assembly in flashlight mode;

Fig. 2 illustrates a portable light and its handle assembly in lantern mode;

Fig. 3 illustrates a plan view over the handle assembly illustrated in Fig. 2;

and

Fig. 4 illustrates a side view of the apparatus of Fig. 2.

## DESCRIPTION OF EMBODIMENTS

As illustrated in Fig. 1, a portable light 1 comprises a body 2, lens assembly 3 at one end, lantern portions 4, and handle assembly 5.

When the portable light 1 is as illustrated in Fig. 1 the portable light is in flash light mode and the lantern portion 4 is concealed. In this configuration the light globe 6 is placed at the focal point of the parabolic reflector (not illustrated) in the flash light lens assembly 3. When moved to a lantern mode the body 2 is relatively moved away from the lens assembly 3 to expose the globe 6 to the lantern portion 4 thus preventing a substantial amount of light from being passed through the lens assembly 3 and directing the light in a radial fashion away from the light globe 6.

In the embodiment illustrated, the end 7 of handle assembly 5 is secured in place on the rear 10 of the body 2 into a recess which allows the end 7 of the handle assembly 5 to rotate relative to the body 2, when end 8 is unsecured.

The end 7 is secured at an angle to both the rear 10 and side 12 of the body 2, as best depicted in Fig. 2. In Fig. 1, the end 7 is depicted as being in the same plane as side 12, however, in practice it sits at approximately the same angle as depicted in Figs. 2 and 4, when the handle assembly 5 is in flashlight mode.

5 The other end 8 is removably secured to the opposite portion on body 2 as compared with the location of end 7. Any releasable securing means can be utilised however a bayonet type fitting is most preferred. The bayonet fitting (not illustrated) engages a recess 9 (preferably sealed) in the body of the light 2.

10 When converting the portable light 1 from flashlight mode which is depicted in Fig. 1, to lantern mode as depicted in Fig. 2, the bayonet fitting at location 8 is disconnected from its recess and transferred to a like recess at location 9 on lens assembly 3.

15 Before the bayonet fitting at location 8 can be inserted into sealed recess 9 the lens assembly 3 and lantern portion 4 must be slid back into the body 2 because the length of the handle assembly 5 is selected so as to maintain the portable light 1 in flash light mode when the end 8 of handle assembly 5 is inserted into the sealed recess 9. In this manner to convert the portable light 1 into lantern mode, the handle assembly 5 must also be put into the corresponding lantern mode i.e. both ends 7 and 8 must be located on the top or rear surface 10 of the body 2. The engagement of recess 9 by end 8 prevents the conversion to lantern mode.

20 The handle assembly 5, can also be used as a control to focus the beam of light, as an amount of sliding movement of the lens assembly 3 is still possible. Thus, even when the portable light 1 is as depicted in Fig. 1, the lens assembly 3 can move away from the body 2 to change the point of emission of light from the light globe 6 relative to the focal point of the parabola. In this way focussing can be affected. In this embodiment the switching means is located at the rear or top portion 10 of the body 2.

25 When the handle assembly 5 is in lantern mode, the user, by virtue of the relative strength and stiffness of the handle can utilise the light as a flashlight, that is the lens assembly 3 being fully retracted. This gives the user the freedom to chose the best grip arrangement for any desired lighting requirement.

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The handle assembly 5, as depicted in Fig. 3 illustrates that the grip portion 15 has a series of grooves 16 extending transversely across the handle assembly 5. It will also be noted that the grip portion 15 has convex sides 17, which when gripped by a user provides a positive grip. When the portable light is used as a flashlight, but with the handle in the lantern configuration, the convex sides 17 of the grip portion 15 allows the user to counter act the rotational force produced by gravity.

The handle assembly 5 is constructed from a single moulding, except for the bayonet fitting which is attached later. The grip portion 15, is generally thicker than the portions 13 which lie between the grip portion 15 and the ends 7 and 8. In being thicker, the grip portion 15 would be less flexible than the portions 13, but the addition of grooves 16 restores some of this flexibility. The bayonet fitting is secured into a recess in the end 8. The bayonet fitting, because of its different functional requirements, is manufactured from a less flexible plastics material than the portions 13 and 15.

In another embodiment (not illustrated) the switching mechanism is located to one side of the handle means 5. The handle means 5 is constructed such that the ends 7 and 8 maintain their relative positions on a handle carriage, on which carriage the handle assembly 5 slides from the rear or upper portion 10 of body 2 onto the side portions of the body 2. In this manner the handle assembly does not disconnect but rather moves as a whole from the lantern orientation to the flash light orientation. In the respective arrangements the handle carriage can be locked in place.

In a third embodiment of the present invention (not illustrated) both ends 7 and 8 are releasably securable to the body. Such securings as press studs, bayonet fittings or the like can be utilised.

The foregoing describes embodiments of the present invention and modifications by those skilled in the art can be made thereto without departing from the scope of the present invention.

## CLAIMS

1. A handle assembly for a portable light, said portable light being convertible between a flash light mode and a lantern mode, said handle assembly including a handle means having ends which engage the body of the light characterised such that a part or all of said handle means can be moved from a first arrangement by which said handle allows the light to be gripped as a flashlight to a second arrangement wherein said light can be gripped as a lantern.
2. A handle assembly for a portable light as claimed in claim 1, whereby when said handle is placed in said second arrangement said flash light is convertible into lantern mode.
3. A handle assembly for a portable light as claimed in claim 1 or 2 wherein at least one end of the handle is either movable, detachable and reattachable or slidable from a first position to a second position.
4. A handle assembly for a portable light as claimed in claim 1 or 2, wherein one end of said handle remains secured whilst the other end is moveable.
5. A handle assembly for a portable light as claimed in claim 1 or 2 wherein both ends of the handle are movable.
6. A handle assembly for a portable light as claimed in claim 1 or 2 wherein both ends of the handle are detachable and replaceable to other positions.
7. A handle assembly for a portable light as claimed in claim 1 or 2 wherein both ends of the handle are slidable from their respective securing locations.
8. A handle assembly for a portable light as claimed in any one of the preceding claims wherein the hand gripped portion of said handle means is

symmetrical so that the same grip is held whether said portable light is in lantern mode or flash light mode.

9. A handle assembly for a portable light as claimed in any one of the preceding claims wherein one end of said handle serves as a locking means to prevent said light from being converted into said lantern mode.

10. A handle assembly for a portable light as claimed in any one of the preceding claims whereby when one end of said handle remains secured and said other end is movable, said other end is secured to a movable part of said light to prevent same from moving into the lantern mode.

11. A handle assembly for a portable light as claimed in any one of the preceding claims wherein one end of said handle when secured to a movable part of said light limits the movement of said movable part and thereby aids the control of the focus of the light beam.

12. A handle assembly for a portable light as claimed in any one of the preceding claims wherein said handle has a grip portion being convex in shape.



1/2

Fig 1.

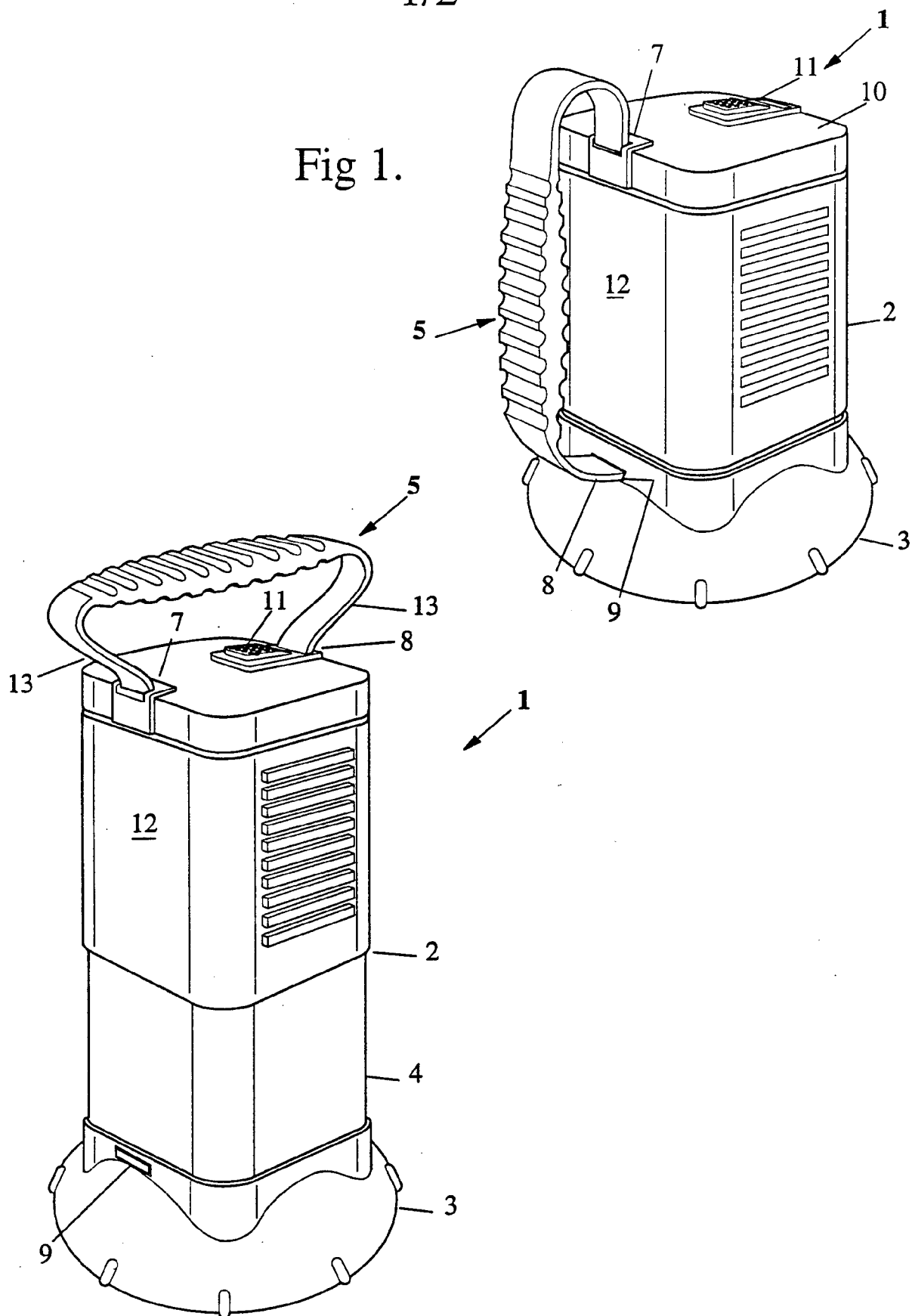


Fig 3.

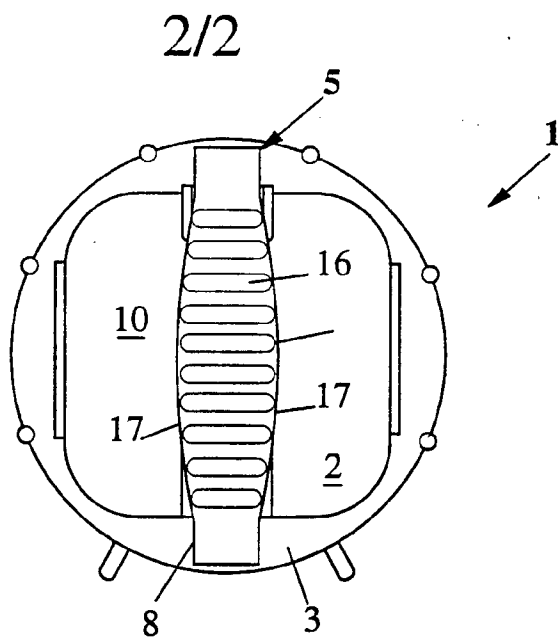
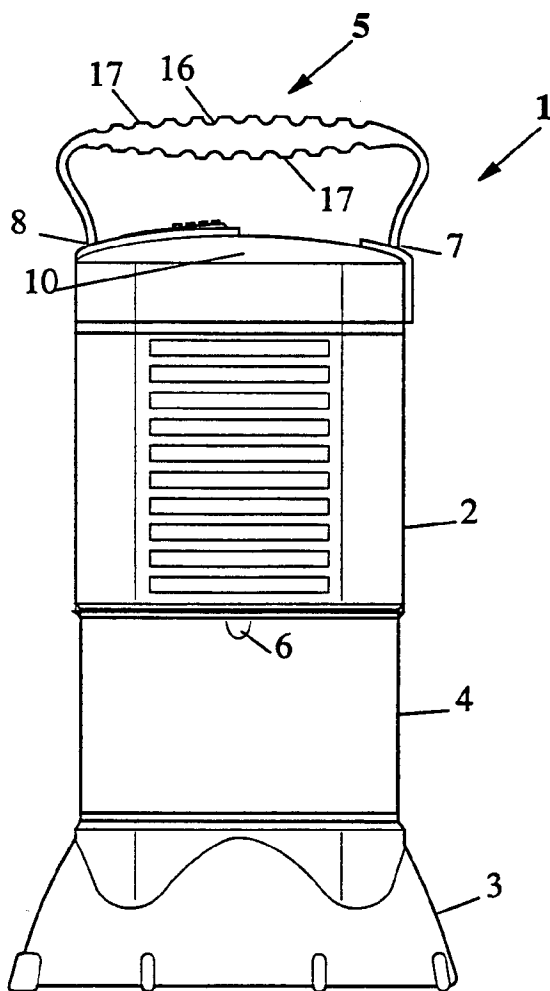



Fig 4.



<b>A. CLASSIFICATION OF SUBJECT MATTER</b> Int. Cl. <sup>5</sup> F21L 1/00, 15/02, 15/12  According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>  Minimum documentation searched (classification system followed by classification symbols) IPC F21L 1/00, 15/02, 15/12  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU : IPC as above  Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.		
A	FR,A, 2305684 (PETZL) 26 November 1976 (26.11.76)	1-12		
A	US,A, 4004132 (GLASS) 18 January 1977 (18.01.77)	1-12		
A	GB,A, 2209387 (SHIV) 10 May 1989 (10.05.89)	1-12		
A	EP,A, 265396 (DIESSE SpA) 27 April 1988 (27.04.88)	1-12		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <input type="checkbox"/> Further documents are listed in the continuation of Box C.         </div> <div style="width: 45%;"> <input checked="" type="checkbox"/> See patent family annex.         </div> </div>				
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Date of the actual completion of the international search 9 August 1994 (09.08.94)		Date of mailing of the international search report 12 August 1994 (12.08.94)		
Name and mailing address of the ISA/AU  AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION PO BOX 200 WODEN ACT 2606 AUSTRALIA  Facsimile No. 06 2853929		Authorized officer  <div style="text-align: center;">   <b>R. TOLHURST</b>          Telephone No. (06) 2832187       </div>		

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US	4004132	CA 998834 JP 50025342	DE 2408144 GB 1434340
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